

## ANNOTATION OF THE EDUCATIONAL COMPONENT

### **Advanced surface engineering technologies**

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| Status  | Selective  |
| Chair   | Technical service and industrial machinery engineering   |
| Teacher   | Haponova Oksana Petrivna, Doctor of Technical Sciences, Professor.   |
| Contact information   | Auditorium 316m<br>Consultation hours – every Monday from 10:00 to 12:00,<br>email: <a href="mailto:veselka.tcet@gmail.com">veselka.tcet@gmail.com</a>   |
| Purpose of discipline   | formation of knowledge in future doctors of philosophy on theoretical and practical aspects of methods of surface treatment of products (mechanical, physical, physico-chemical, chemical and electrochemical), technological processes of surface treatment, features of formation of surface layers by various treatment methods and their impact on the reliability and durability of products, main directions and methods of product restoration.   |
| Main tasks  | obtaining knowledge and skills in the direction of studying a wide range of methods and technological processes for restoring the geometric dimensions of products and protecting or strengthening the surface of structural parts that are operated under conditions of friction, shock, contact loads, and are subject to the influence of aggressive environments. Studying the structure and principle of operation of production equipment and surface treatment installations enables students to solve complex technological problems to increase the operational stability of structural elements and reduce the cost of the production process. |
| As a result of studying the discipline, the student must know | <p>As a result of studying the discipline, the student must</p> <ul style="list-style-type: none"><li>- the essence of technological processes used for strengthening, product renovation and surface engineering;</li><li>- methods, devices and materials for restoring and strengthening parts and assemblies of machine parts;</li><li>- advantages and disadvantages of surface engineering methods, ways to improve them.</li></ul>  |
| be able   | <ul style="list-style-type: none"><li>- choose the most effective method of repairing and strengthening the part;</li><li>- choose the necessary material to restore and strengthen the surface of the part;</li><li>- determine the characteristics of the part for repairability;</li></ul>  |

- to draw up an algorithm for the technological process of the repair process, coating the surface of products;
- provide recommendations and make informed decisions on the application of surface hardening technology for parts.